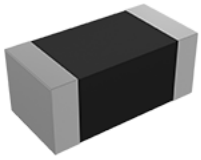
MetalLions

MLP201610S Series
Thin-film Power Inductors

FEATURES



- Use magnetic materials with high saturation magnetic flux density to achieve good DC superposition characteristics in power circuits.
- Achieve universality and stability of pad layout with SMD product shape and terminal structure.
- Use closed magnetic circuit structure to control the minimum magnetic flux loss.
- RoHS compliant.
- Operating temperature -40~+125℃(Including self -temperature rise)

APPLICATIONS

- smart phones, tablets, SSD, DVC, DSC, VC, wristbands, watches, power modules, etc.

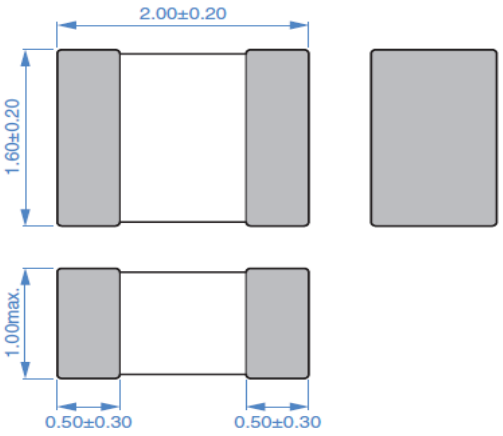
Explanation of Part Number

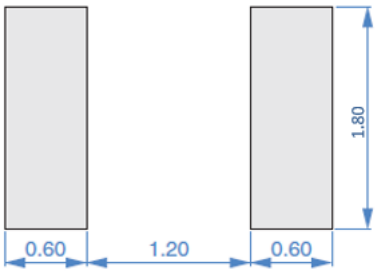
MLP 201610 S 1R0 M T

1 2 3 4 5 6

- 1:Product Series:
- 2:Dimensions:
- 3: Series Code
- 4: Initial inductance value: 1R0 = 1.0uH
- 5:Tolerance of Inductance:M:±20%
- 6:Packing:Tape Carrier Package

Dimensions: [mm]





Recommended Land Pattern

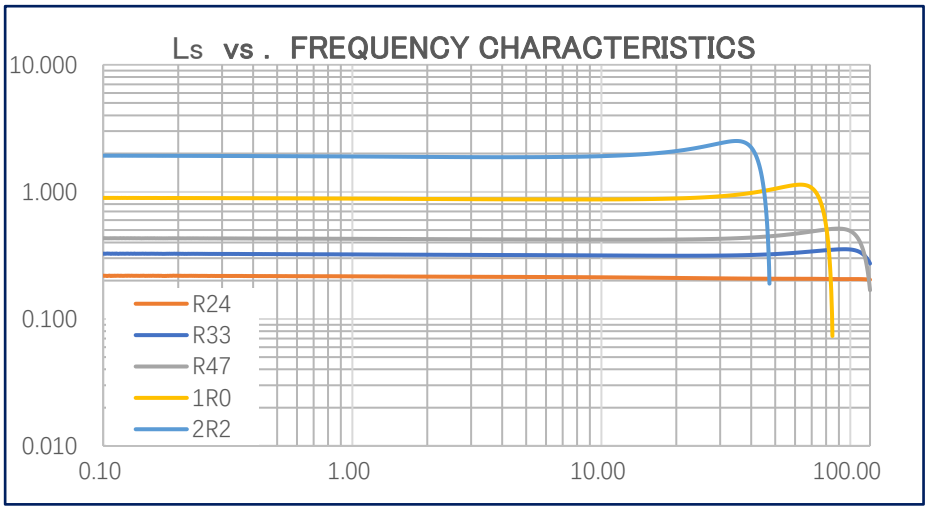
Electrical Properties:

Part No.	L (uH)	Tolerance	Measuring Frequency	DCR(mΩ)		*Isat(A)		*Itemp(A)	
			(MHz)	typ	max	typ	max	typ	max
MLP201610SR24MT	0.24	±20%	1	15	18	6.5	6.0	5.4	5.0
MLP201610SR33MT	0.33	±20%	1	18	21	6.1	5.6	5.0	4.6
MLP201610SR47MT	0.47	±20%	1	22	25	5.5	5.0	4.7	4.3
MLP201610S1R0MT	1.0	±20%	1	48	55	4.4	4.0	3.8	3.4
MLP201610S2R2MT	2.2	±20%	1	109	120	2.3	2.1	2.5	2.3

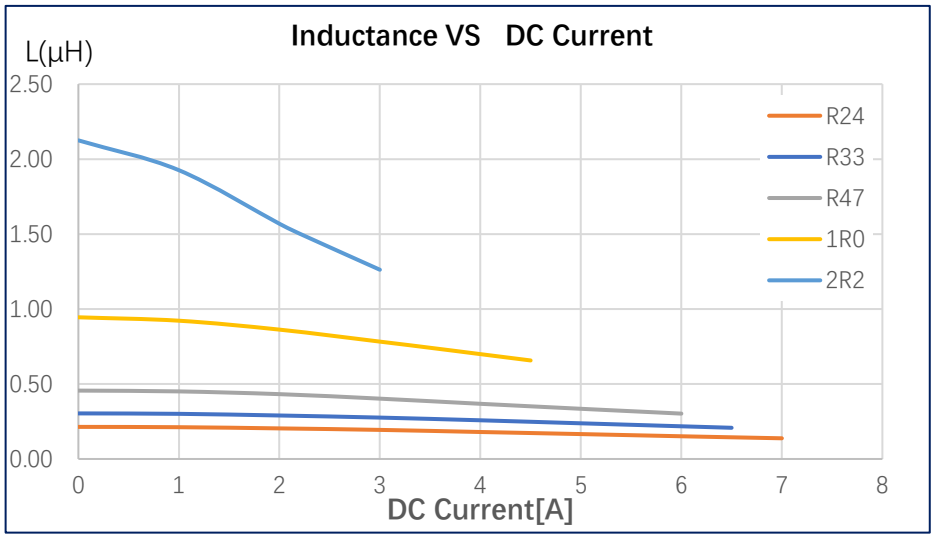
Notes：

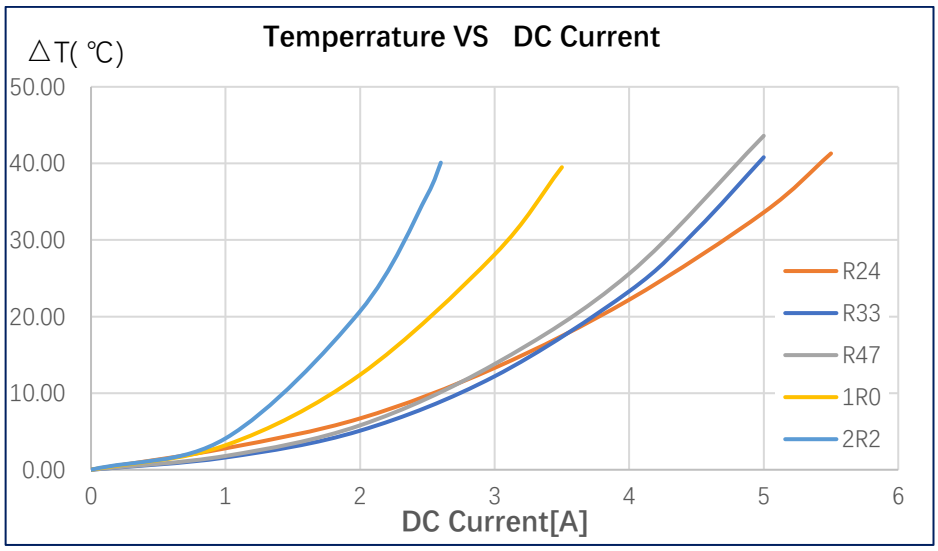
1. Test Condition:1MHz, 1.0Vrms， referenced to 25 ℃ ambient.
2. Rated Current： Isat or Itemp, whichever is smaller.
   Isat： the current (A) that will cause the L value to drop 30%.
   Itemp： the current (A) that will cause a temperature rise of 40°C.
   Please feel free to contact us for further information on rated current and product temperature characteristics.
3. Maximum rated voltage :DC 20 V

L Frequency Characteristics



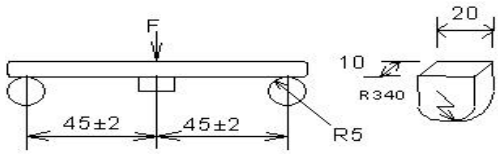
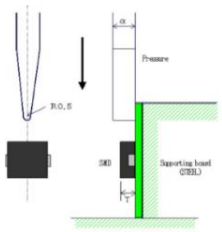
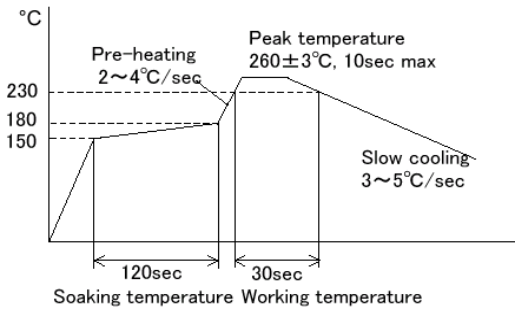
Inductor DC Superposition Characteristics



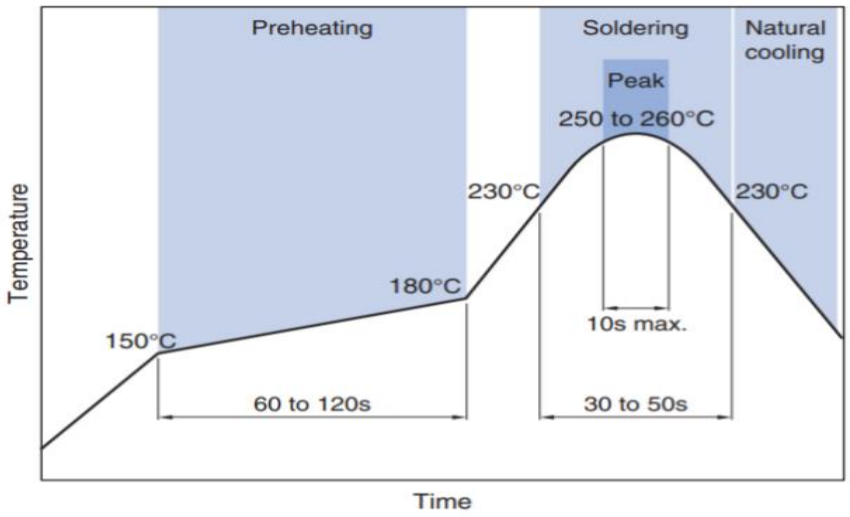


Reliability test

<table>
<tr><th>No.</th><th>project</th><th>Experimental standard</th><th>Judgment conditions</th></tr>
<tr><td>1</td><td>Solder attachment experiment</td><td>Dipped in tin 245°C±5°C, products placed in the tank for 2±0.5sec</td><td>More than 95% of the surface must be covered by tin without detachment
No abnormal appearance</td></tr>
<tr><td>2</td><td>Mechanical vibration experiment</td><td>Put the product to be verified on the substrate and solder
Vibration frequency: 10Hz to 2000Hz to 10Hz， 20min/cycle
Acceleration or amplitude*1: 10G or 1.5mmP-P,12 cycle* XYZ each, total 36</td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
<tr><td>3</td><td>Mechanical shock experiment</td><td>Put the product to be verified on the substrate and solder
Maximum acceleration 980m/S2
Sine half-wave pulse with an action time of 6msec
Add 3 times in each of the 6 directions, a total of 18 times.</td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
<tr><td>4</td><td>High temperature operation</td><td>Placed at 85±2°C
500hr±12hr through rated current
Placed in room temperature and humidity for 1hr before testing</td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
<tr><td>5</td><td>Thermal shock experiment</td><td>The following table is for 1 cycle, after 500 cycles are completed.
Measured after placing in room temperature and humidity for 1 hour.
<table>
<tr><td></td><td>Temperature</td><td>Time</td></tr>
<tr><td>1</td><td>-40±3°C</td><td>30 min.</td></tr>
<tr><td>2</td><td>room temperature</td><td>Within 1min</td></tr>
<tr><td>3</td><td>125±2°C</td><td>30 min.</td></tr>
<tr><td>4</td><td>room temperature</td><td>Within 1min</td></tr>
<tr><td></td><td></td><td></td></tr>
</table></td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
<tr><td>6</td><td>High temperature storage</td><td>125±2°C under the condition of room humidity
500hr±12hr
Placed in room temperature and humidity for 1h before testing</td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
<tr><td>7</td><td>Low temperature storage</td><td>Stored at -40±2°C
500h±12h
Placed in room temperature and humidity for 1hr post-test</td><td>No abnormal appearance
No open circuit or short circuit occurred.
｜△L/L ｜≦ 10%,</td></tr>
</table>

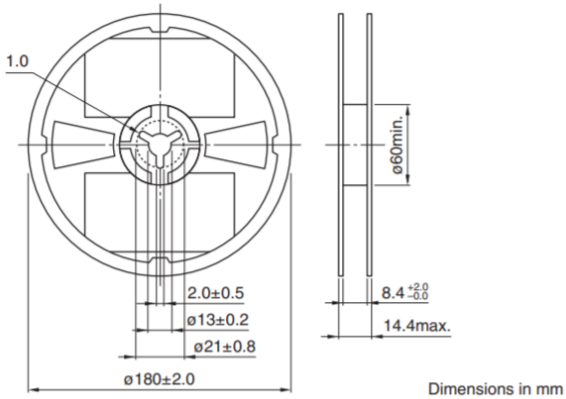
8	High temperature and high humidity storage	85±2°C 85%RH 500hr±12hr Placed in room temperature and humidity for 1hr before testing	No abnormal appearance No open circuit or short circuit occurred. ｜△L/L｜≦ 10%,
9	Substrate bending	Put the sample on the substrate to solder, apply pressure in the direction of the arrow until the amount of bending becomes about 3mm, hold for 30 seconds 	No abnormal appearance No open circuit or short circuit occurred. ｜△L/L｜≦ 10%,
10	Electrode strength	Apply 0.5mm/sec on the side of the sample using a specified pressure jig (see Figure 1). The tip of the fixture that is in contact with the sample should be centered on the sample surface. Apply a force parallel to the substrate (shear force) to observe the adhesion of the glass epoxy substrate to the product. 	> 10N
11	Reflow soldering test	Substrate reflow 3 times 	No abnormal appearance No open circuit or short circuit occurred. ｜△L/L｜≦ 10%,

Recommended Reflow Soldering Temperature Profile

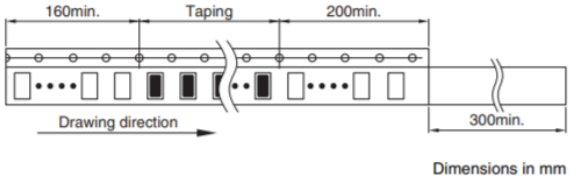


Package Style

☐ Roll size

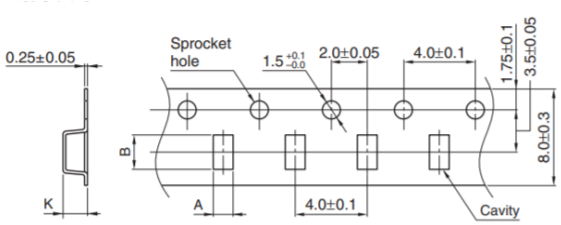


Dimensions in mm



Dimensions in mm

☐ Tape size



Dimensions in mm

Type	A0	B0	K
MLP201610S	1.95	2.35	1.15

☐Packing Quantity

Packing Quantity	3000 pcs/ roll

Safety Precautions

When using this product, please pay attention to safety matters.

⚠ Notice

○The storage period is less than 12 months. Be sure to follow the storage conditions (temperature: 5 ~ 40°C; humidity 20 ~ 75%RH or less).
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.

○Do not use and store in gas corrosive environments (salt, acid, alkali, etc.).

○Before soldering, be sure to preheat components.
The preheating temperature should be set so that the difference between soldering temperature and chip temperature does not exceed 150°C.

○Soldering corrections after mounting should be within the conditions determined in the specification.
Excessive heating may result in short circuit, performance degradation, or shortened lifespan.

○When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.

○Self-heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.

○Carefully lay out the coil for the circuit board design of the non-magnetic shield type. A malfunction may occur due to magnetic interference.

○Use a wrist band to discharge static electricity in your body through the grounding wire.

○Do not expose the products to magnets or magnetic fields.

○Do not use for a purpose outside of the range specified in the product specification.

○The products listed in this catalog are intended for use in general electronic equipment (AV equipment, telecommunication equipment, home appliances, entertainment equipment, computer equipment, personal equipment, office equipment, measuring equipment, industrial robots), and under a normal operation and use condition. The products are not designed or warranted to meet the requirements of the applications listed below, of which the performance and/or quality require a more stringent level of safety or reliability, or of which the failure, malfunction or trouble could cause serious damage to society, person or property.
If you intend to use the products in the applications or if you have special requirements exceeding the range or conditions set forth in the catalog, please contact us.

(1) Aviation and aerospace equipment
(2) Transportation equipment (cars, trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Submarine equipment
(7) Vehicle control equipment
(8) Highly public information processing equipment
(9) Military equipment
(10) Electric heating supplies, combustion equipment
(11) Disaster prevention and anti-theft equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration the protective circuit/device or providing backup circuits in your equipment.